:-Origin of the Problem:-

For any two collections $\mathcal{A}$ and $\mathcal{B}$ of subsets or family of subsets of a set $X$, a selection principle is a procedure applied to $\mathcal{A}$ to arrive at $\mathcal{B}$. Selection principle theory is a field of mathematics having a rich history going back to the papers by Borel, Menger, Hurewicz, Rothberger (1920 to 1930’s) [19, 31, 23, 32]. A systematic investigation of Scheepers [35] attracted a large number of Mathematicians in this area and the investigations increased very rapidly.

The method of star operator has been used to study the problem of metrization of topological spaces and is used in the definitions of several important classical topological notions. Kočinac is the first person who used the star operator for defining the selection principles [24, 25, 26, 27, 28]. Classical selection principles, selective versions of classical selection principles and star-selection principles has been studied extensively by many mathematicians in recent days [24, 25, 36, 27, 37, 34, 28]. Some important selection principles in the field of topology are $S_1(\mathcal{A}, \mathcal{B})$ [35], $S_{fn m}(\mathcal{A}, \mathcal{B})$ [35], $S_1^*(\mathcal{A}, \mathcal{B})$ [24], $S_{fn m}^*(\mathcal{A}, \mathcal{B})$ [24] etc. Now a days, this theory has deep connections with many branches of Mathematics such as set theory and general topology, set theoretic topology, game theory, Ramsey theory, function spaces and hyper spaces, cardinal invariants, dimension theory, uniform structures, topological groups etc.

In the definition of star-selection principles, it is observed that starting from a collection $\mathcal{A}$ to arrive to a collection $\mathcal{B}$ another collection may be required with respect to which star operator will operate. So it is natural to study star-selection principles which deal with three collections, which is almost ignored. $SS_{k}^*(\mathcal{A}, \mathcal{B})$ is
the only such selection principle introduced by Kočinac [24, 25]. We are interested to investigate some unrevealed theories and corresponding topological properties in this direction.